

CLAIM AMENDMENTS

Please cancel Claims 19-32 without prejudice to the patentability of the subject matter thereof.

Please amend Claims 1 and 17, and add new Claims 33-36 as follows:

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1. (Currently Amended) A solid-state image pickup device comprising a photoelectric converter, an input terminal for a signal amplifier, a transfer switch for transferring an electric charge from the photoelectric converter to the input terminal and a reset switch for applying a reset voltage to the input terminal, wherein said device is adapted to input operate such that a pulse signal is input to each of the reset switch and the transfer switch in order to turn on said reset switch and said transfer switch simultaneously together at least in a predetermined period, and that after an electric charge is stored in the photoelectric converter and then transferred to the input terminal for a signal amplifier, a pulse signal is again input to each of the reset switch and the transfer switch to turn said switches on together at least in a predetermined period.

2. (Original) A solid-state image pickup device according to claim 1, wherein said reset voltage applied to the input terminal by means of said reset switch is selected to be higher than the depletion voltage defined as a reverse bias voltage sufficiently high for substantially depleting the semiconductor region of said photoelectric converter.

3. (Original) A solid-state image pickup device according to claim 1, wherein said photoelectric converter comprises a buried type photodiode.

4. (Original) A solid-state image pickup device according to claim 1, wherein said transfer switch is a switch for depletion-transferring the electric charge stored in said photoelectric converter.

5. (Original) A solid-state image pickup device according to claim 1, wherein said transfer switch is a switch for transferring the electric charge stored in said photoelectric converter, leaving part of the electric charge in said photoelectric converter.

6. (Original) A solid-state image pickup device according to claim 1, wherein the reset voltage is so selected as to make the potential energy of said input terminal lower than the potential energy of said photoelectric converter when said transfer switch and said reset switch are on.

7. (Original) A solid-state image pickup device according to claim 1, wherein said transfer switch is made half-open to cause any excessive electric charge to flow to said input terminal during the storage period of the device.

8. (Original) A solid-state image pickup device according to claim 1, wherein the resetting operation of turning on both said transfer switch and said reset switch is conducted on a row by row basis for the photoelectric converter.

9. (Original) A solid-state image pickup device according to claim 1, wherein the resetting operation of turning on both said transfer switch and said reset switch is conducted at once for all the rows.

10. (Original) A solid-state image pickup device according to claim 1, wherein the resetting timing of turning on both said transfer switch and said reset switch is modified depending on the quantity of light entering said photoelectric converter.

11. (Original) A solid-state image pickup device according to claim 1, wherein said photoelectric converter, said input terminal for a signal amplifier and said transfer switch are arranged on a same semiconductor substrate.

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12. (Original) A solid-state image pickup device according to claim 1, wherein said input terminal is a diffusion region.

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13. (Original) A solid-state image pickup device according to claim 1, wherein said photoelectric converter is a photodiode comprising a first semiconductor region of a first conductivity type formed in a semiconductor substrate, a second semiconductor region of a second conductivity type located within said first semiconductor region and a third semiconductor region of the first conductivity type located between said second semiconductor region and an insulation film formed on the principal surface of the semiconductor substrate.

14. (Original) An image input apparatus comprising:  
a solid-state image pickup device as defined in claim 1; and  
a mechanical shutter for defining the exposure time of the solid-state image pickup device.

15. (Original) An image input apparatus according to claim 14, wherein the photoelectric charge storage period is defined by the resetting operation of said solid-state image pickup device and the opening/closing operation of said mechanical shutter.

16. (Original) A method of resetting a solid-state image pickup device as defined in claim 1, comprising a step of turning on said reset switch and said transfer

switch simultaneously, before storing an electric charge, to eliminate an electric charge of said photoelectric converter.

17. (Currently Amended) A solid-state image pickup device comprising a photoelectric converter, an input terminal for a signal amplifier, a transfer switch for transferring an electric charge from the photoelectric converter to the input terminal, a reset switch for applying a reset voltage to the input terminal and a circuit for generating a pulse signal ~~in order to turn on said~~ such that the reset switch and said transfer switch simultaneously are turned on together at least in a predetermined period, and that after an electric charge is stored in the photoelectric converter and then transferred to the input terminal for a signal amplifier, the reset switch and the transfer switch are again turned on together at least in a predetermined period.

18. - 32. (Cancelled)

33. (New) A solid-state image pickup device having a plurality of pixels, each comprising a photoelectric converter, an input terminal for a signal amplifier, a transfer switch for transferring an electric charge from the photoelectric converter to the input terminal and a reset switch for applying a reset switch to the input terminal, wherein said device is adapted to operate such that a pulse signal is input to each of the reset switch and the transfer switch for each pixel to turn said switches on together at least in a predetermined period, thereby resetting the photoelectric converters of all the pixels collectively, so that an electric charge is then stored in the photoelectric converter for each of the pixels, and that the electric charge stored in each of the photoelectric converters is subsequently read out from the pixel on a line by line basis.

34. (New) A solid-state image pickup device according to claim 33, wherein after the electric charge is read out on a line by line basis, the pixels are reset on a line by line basis.

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35. (New) A solid-state image pickup device according to claim 33, wherein said device further comprises an A/D converter for inputting a signal read out from the pixels and a memory cell for writing a digital signal converted by the A/D converter.

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36. (New) A solid-state image pickup device according to claim 35, wherein said memory cell is provided for each of the pixels.

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